Space Weather Forecast

Issued on Friday 15 November 2024 at 01:08 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Minor/Moderate radio blackouts (R1/R2) possible. Slight chance of Minor Geomagnetic Storms.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was Low during the past 24-hours with only Common class flares, the largest of which occurred at 13/2259 UTC from a region that has now rotated off the visible disc.

There are five sunspot regions on the visible disc. AR3889, in the southwest, remains the largest and most complex region on the disc. The remaining regions are relatively small and simple.

No Coronal Mass Ejections (CMEs) observed over the past 24 hours are considered to have an Earth-directed component.

Solar Wind / Geomagnetic Activity: Solar winds were initially indicative of a slow regime but rose steadily from approximately 14/0300UTC under the influence of a slightly faster solar wind stream. reaching between 380-410km/s. Later in the day winds decreased slightly, to around 350 km/s. The interplanetary magnetic field initially weak, also saw a steady increase following HSS arrival, becoming persistently moderate, with a peak around 14nT. The north-south component initially varied weakly. The Bz varied at moderate levels following faster solar wind stream arrival, with a predominantly moderate negative spell between 14/0930 UTC and late in the day. Geomagnetic activity was Quiet to Unsettled, apart for an Active interval 14/1800-2100 UTC.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity expected, with a chance of Moderate flares and a slight chance of Strong flares, mostly from the largest sunspot.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs currently feature in the forecast.

Background to slightly elevated solar wind speeds are expected, although from late day 3 (17th) there is a chance of Elevated wind speeds of around 500km/s occurring with a connection to a HSS. Geomagnetic activity is expected to be Unsettled to Active initially, with a slight chance of isolated Minor Geomagnetic Storm intervals. Through today activity will decline slightly, becoming

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Quiet to Unsettled. Then from late day 3 activity will increase slightly again, becoming Unsettled to Active with a chance of isolated Minor Geomagnetic Storm intervals.

Energetic Particles / Solar Radiation: High energy proton flux is most likely to remain at background levels with Solar Radiation storms unlikely. There is a slight chance of S1/Minor solar radiation storms due to the potential for flaring from the largest sunspot group as it rotates westward across the Sun.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	20	10	30	40
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	40	40	40	40
Very Active	R3-R5 (X Class)	No	5	5	5	5

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Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	**≥ S1**	No	10	10	10	10
Very Active	**≥ S3 ***	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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